**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions and listings of claims in the application. Please amend the claims as follows:

Claims 1-20. (Canceled)

21-33. (Withdrawn)

34. (Previously presented) A method of making a transgenic mouse comprising a vector, comprising:

a) introducing a vector into a collection of mouse embryonic stem (ES) cells, wherein the vector comprises a 3′ gene trap cassette, comprising in operable combination:

i) a promoter;

ii) an exon sequence located 3′ from and expressed by said promoter, said exon sequence not encoding an activity conferring antibiotic resistance; and

iii) a splice donor sequence located at the 3′ end of said exon sequence;

wherein the vector does not encode a sequence that mediates the polyadenylation of an mRNA transcript encoded by said exon sequence;

b) selecting mouse ES cells that comprise the vector integrated into the genome;

c) identifying at least one mouse ES cell comprising the vector, wherein the integration of said vector results in the mutation of a gene of the mouse, and wherein the mutated gene has been identified after integration of the vector; and

d) making a transgenic mouse comprising the vector from at least one identified–mouse ES cell that comprises the vector.

35. (Previously presented) The method of claim 34, wherein the vector from at least one identified mouse ES cell that comprises the vector is non-homologously incorporated into the genome of at least one cell in the transgenic mouse.

36-39. (Canceled)

40. (Previously presented) The method of claim 34, wherein the exon sequence additionally encodes an internal ribosome entry site operatively positioned between said promoter and an initiation codon of said exon sequence.

41. (Previously presented) The method of claim 34, wherein the vector additionally comprises in the region upstream of said promoter at least one of a transcription termination sequence, a 3′ terminal exon, and a sequence encoding a self-cleaving RNA.

42. (Previously presented) The method of claim 34, wherein the exon sequence encodes a marker selected from an enzymatic marker, a recombinase, and a fluorescent marker.

43. (Previously presented) The method of claim 42 wherein the marker is a fluorescent marker.

44. (Previously presented) The method of claim 34, wherein the vector is selected from a viral vector and a retroviral vector.

45. (Previously presented) The method of claim 34, wherein the mutated gene has been identified by a method comprising:

a) obtaining a chimeric transcript resulting from splicing of the exon sequence from the vector to a second exon sequence, wherein the second exon sequence is from the genome of the ES cell;

b) reverse transcribing said chimeric transcript to produce a cDNA template; and

c) determining the polynucleotide sequence of the cDNA template.

46. (Canceled)